THE CONTENTS OF THIS DOCUMENT ARE THE HIGHEST QUALITY AVAILABLE

INITIAL JC **DATE** 11-29-05

NEW SITE IDENTIFICATION (NSI)

Part A – NEW SITE IDENTIFICATION INFORMATION (To be completed by the Task Lead for New Site)	
1. **Site Title:** Shallow Injection Wells near CPP-702 and Shallow Injection Wells Located In the Olive Avenue Utility Tunnel (Use known common names, location descriptors and or processes near or associated with the suspected inactive waste site.)	**Site Code:** CPP-113, CPP-114, CPP-115, and CPP-116 **NSI Evaluation Initiation Date:** November 10, 2004
2. **Task Lead For New Site:** Lee Tuott	Phone: 526-7990
3. **NSI Coordinator:** Wendell Jolley	Phone: 526-5990
4. **Initiator or Initial Observer:** Wendy Savkranz	Phone: 526-4858

5. **Description of Suspected New Site and Location:** (A location map and/or diagram identifying the site against controlled survey points or global positioning system descriptors may be included. Document all existing information including historical, process, screening data, analytical data, radiological surveys etc. Attach supporting documentation)

The suspected new site includes four shallow injection wells. Two of the wells received steam condensate generated from operation of CPP-702, the fuel oil unloading shelter, or the associated tanks (VES-WDS-100 and VES-WDS-101). CPP-702 started operating in the early 1950's. The tanks were used to store fuel oil until approximately 1970. At that time kerosene was stored and pumped until 1995. Kerosene was stored until 2004, when the facility was decommissioned. The remaining two wells received steam condensate generated from operation of the Steam Distribution System. Utility drawings are attached that reflect the well locations. For identification purposes in this form, the shallow injections wells are identified by the CERCLA site number; followed by the INL well name; followed by the well name in parentheses. Also, a description of the location of the wells and their history follows below after their CERCLA site number.

CPP-113, 39-CPP, (MAH-WDS-HS-051); located south of building CPP-702 between tanks VES-WDS-100 and VES-WDS-101.
CPP-114, 40-CPP; is located east of building CPP-702.
CPP-115, 45-CPP, (CT-NN-156770); is located in the Olive Avenue Utility Tunnel south of CPP-659.
CPP-116, 46-CPP, (CT-NN-156757); is located in the Olive Avenue Utility Tunnel northwest of CPP-633.

CPP-113 – This shallow injection well is located inside the earthern berm between VES-WDS-100 and VES-WDS-101, south of the CPP-702 building (reference drawing #104017[EDMS]). Three separate steam condensate lines discharge to CPP-113. One discharge was from supply lines from CPP-702 and the other two were steam condensate lines from the heating coils associated with the two tanks (VES-WDS-100 and VES-WDS-101). The well measures 3'-9" by 4' square and is approximately 12'-6" below grade.

CPP-114 – This shallow injection well is located east of the Fuel Oil Unloading Shelter, CPP-702. From 1952 to 1994, this well received a steam condensate discharge from two radiators used to heat the 216 square foot CPP-702 shelter. The well is approximately 3-feet in diameter, filled with rocks and gravel, and the bottom is approximately 6 feet below grade. There is no surface opening for the well as the area is covered with asphalt.

CPP-115 - This shallow injection well is located in the Olive Avenue utility tunnel south of CPP-659. The well was activated in approximately 1981 and was inactivated with the reroute of the drip leg to the condensate return system in December 2004. It is a condensate drip leg that discharged to a ¾-inch pipe perforated with 1/8- inch holes, and ½-inch on center in medium rock and one foot all around. The bottom of the well is located approximately 12 feet below existing grade. Reference document DOE/NE-ID-11138, for additional specifics and a photograph of the site.

CPP-116 - This shallow injection well is located in the Olive Avenue utility tunnel northwest of CPP-633. The well was activated in approximately 1981 and was inactivated with the reroute of the drip leg to the condensate return system in December 2004. It is a condensate drip leg that discharged to a ¾-inch pipe perforated with 1/8-inch holes, and ½-inch on center in medium rock one foot all around. The bottom of the well is located approximately 8 feet below existing grade. Reference document DOE/NE-ID-11138, for additional specifics and a photograph of the site.

Two CERCLA Track 1 assessments for nine INTEC shallow injections wells that received steam condensate have been approved by the agencies (March 2004). The Track 1 assessments recommend "no further action" for the nine SIWs. These wells (CPP-113, CPP-114, CPP-115, and CPP-116) are bounded by the Track 1 shallow injection well assessments. This is based on the similar operations (received steam condensate from building or petroleum tank heating), volume of condensate due to building area, tank volume or system heated: time frame of operation (1950 – 1985), and extent/years of operation. Therefore, post 1985 operations are bounded by the calculations performed for pre-1985 operations. Less toxic chemicals were used and better operating practices were implemented (i.e., less chemical use). In light of this, the recommendation of the Track 1 assessment provides a bounding scenario for the wells. The recommendation for the sites is "no action". It is noted that these SIWs will be abandoned in accordance with the

NEW SITE IDENTIFICATION (NSI)

requirements for abandonment of SIWs per IDAPA 37.03.03.030.04.

The Track 1 bounding calculation (Building CPP-633, Shallow Injection Well CPP-109) is as follows:
(1) Calculate the volume of the soil in the cone-shaped area in kilograms:

- Assume cone-shaped contamination zone with the cone being 3-ft at top, 17-ft at bottom, and 7-ft in height (1:1-ft slope down to 10 ft bgs, zone starts at 3 ft bgs)
- The calculated volume of the cone area using the ABE Volume Calculator is = 640 ft^3
- Convert cubic feet to cubic centimeters
  640 ft^3 = 18.12m^3 or 18,122,105 cm^3
- Calculate grams assuming dry bulk soil density = 1.5g/ cm^3
  (18,122,105 cm^3)(1.5 g/ cm^3) = 27,183,157 g
- Convert to kilograms:
  27,183,157/1,000 = **27,183 kg**

(2) Calculate mass in grams of CPP-633's condensate volume:

- Calculate the percentage of CPP-633's condensate volume based on INTEC's boiler system volume per year to determine the volume of condensate attributed to this specific building. The equate is CPP-633's condensate volume (gal/yr) boiler system output (gal/yr): 324,000 gal/14,400,000 gal = .0225 = **2.25%**
- Next, calculate the contaminant constituent volume used in the INTEC coiler system per year. The constituent represents a wt% of 10-25% of the corrosion inhibitor product. The higher value (25%) was used for this calculation. The equation is the total gallons of the corrosion inhibitor product used per year times the wt% of the constituent in the product: (400 gal)(.25) ▫ 100 gal
- In order to calculate the number of grams of the constituent used in the INTEC boiler system, the equation is the density of the constituent (referenced in the MERCK Index, 12th Edition) times the volume of the constituent times the number of cubic centimeters in a gallon: (density of constituent)(volume of constituent)(cm^3 per gallon) (0.8647 g/cm^3)(100 gal)(3,785.4 cm^3/gal) = **327,324 g**
- Calculate the milligram per year of the constituent based on the percentage volume of condensate for CPP-663 times the number of grams of constituent used in the INTEC boiler system: (.0225)(327,324) = 7,364 g/yr or **7,364,790 mg/yr**

(3) Calculate the total concentration of the constituent in the contamination zone (3 x 17 x 7 ft). The formula is the milligrams of constituent per year times the number of operating years divided by the volume of the soil: (7,364,790 mg)(24 years)/27,183 kg = **6,502 mg/kg**

The risk-based concentration level is 12,000 mg/kg for a Hazard Index of 1; therefore, calculate the ratio of the calculated concentration of the constituent divided by the risk-based concentration level.

6,502 mg/kg / 12,000 mg/kg = 0.54 or less than the Hazard Index of 1 and does not pose a risk.

The Material Safety Data Sheets from the Track 1 investigation are attached.

6. **Is the site SWMU as defined in OSWER DIRECTIVE 9502.00-6?** ☒ **Yes** ☐ **No**

7. **Recommendation**

☐ Recommend not including as a new FFA/CO site. This site DOES NOT warrant further investigation, does not meet the criteria for acceptance, and should not be included under FFA/CO Action Plan.

☒ Recommend including as new FFA/CO site. This site DOES meet the criteria for acceptance, may warrant further investigation, and should be included under FFA/CO Action Plan.

Recommended WAG and Operable Unit to which site should be assigned:

WAG: 3 Operable Unit: 13

NEW SITE IDENTIFICATION (NSI)

Recommended action for this site:

☒ No Action ☐ No Further Action ☐ Remedial Action under Existing ROD ☐ Track 2 ☐ RI/FS

8. Responsible Manager Signature:

Name: Lane Butler Signature: [signature] Date: 11/29/05

NEW SITE IDENTIFICATION (NSI)

PART B – INEEL FFA/CO RESPONSIBLE PROGRAM MANAGERS (RPM'S) CONCURRENCE

Site Title: Shallow Injection Wells located at INTEC | **Site Code:** CPP-113, CPP-114 CPP-115, CPP-116

DOE-ID FFA/CO RPM Concurrence: ☑ Concur with recommendation. ☐ Do not concur with the recommendation.

Signature: Mary C Verwolf Date: 4/19/05

Explanation: Kathleen E Hain 5/10/05

All well should be abandoned in compliance with Idaho state regulations.

EPA FFA/CO RPM Concurrence: ☑ Concur with recommendation. ☐ Do not concur with the recommendation.

Signature: [signature] Date: 4-25-05

Explanation: Please attach supporting documentation as refrenced on page one last paragraph. Abandon per Idaho groundwater protection regulations.

State of Idaho FFA/CO RPM Concurrence: ☑ Concur with recommendation. ☐ Do not concur with the recommendation.

Signature: Paige D. Hahn Date: 4/24/05

Explanation:

CPP-113, CPP-114, CPP-115 CPP-116

The bounding calculation from the Track 1 investigation (Building CPP-633, Shallow Injection Well CPP-109) is as follows:

(1) Calculate the volume of the soil in the cone-shaped area in kilograms:

- Assume cone-shaped contamination zone with the cone being 3-ft at top, 17-ft at bottom, and 7-ft in height (1:1-ft slope down to 10 ft bgs, zone starts at 3 ft bgs)
- The calculated volume of the cone area using the ABE Volume Calculator is = 640 ft^3
- Convert cubic feet to cubic centimeters
  640 ft^3 = 18.12m^3 or 18,122,105 cm^3
- Calculate grams assuming dry bulk soil density = 1.5g/ cm^3
  (18,122,105 cm^3)(1.5 g/ cm^3) = 27,183,157 g
- Convert to kilograms:
  27,183,157/1,000 = **27,183 kg**

(2) Calculate mass in grams of CPP-633's condensate volume:

- Calculate the percentage of CPP-633's condensate volume based on INTEC's boiler system volume per year to determine the volume of condensate attributed to this specific building. The equate is CPP-633's condensate volume (gal/yr) boiler system output (gal/yr): 324,000 gal/14,400,000 gal = .0225 = **2.25%**
- Next, calculate the contaminant constituent volume used in the INTEC coiler system per year. The constituent represents a wt% of 10-25% of the corrosion inhibitor product. The higher value (25%) was used for this calculation. The equation is the total gallons of the corrosion inhibitor product used per year times the wt% of the constituent in the product: (400 gal)(.25) = 100 gal
- In order to calculate the number of grams of the constituent used in the INTEC boiler system, the equation is the density of the constituent (referenced in the MERCK Index, 12th Edition) times the volume of the constituent times the number of cubic centimeters in a gallon: (density of constituent)(volume of constituent)(cm^3 per gallon) (0.8647 g/cm^3)(100 gal)(3,785.4 cm^3/gal) = **327,324 g**
- Calculate the milligram per year of the constituent based on the percentage volume of condensate for CPP-663 times the number of grams of constituent used in the INTEC boiler system: (.0225)(327,324) = 7,364 g/yr or **7,364,790 mg/yr**

(3) Calculate the total concentration of the constituent in the contamination zone (3 x 17 x 7 ft). The formula is the milligrams of constituent per year times the number of operating years divided by the volume of the soil: (7,364,790 mg)(24 years)/27,183 kg = **6,502 mg/kg**

The risk-based concentration level is 12,000 mg/kg for a Hazard Index of 1; therefore, calculate the ratio of the calculated concentration of the constituent divided by the risk-based concentration level.

6,502 mg/kg / 12,000 mg/kg = 0.54 or less than the Hazard Index of 1 and does not pose a risk.

The Material Safety Data Sheets from the Track 1 investigation are attached (Attachment 1).

Attachment 1

Material Safety Data Sheets for Amercor 1848 Corrosion Inhibitor, Amersite 2 Corrosion Inhibitor, and Advantage Plus 1400 Deposit Inhibitor

ADVANTAGE PLUS 1400 DEPOSIT INHIBITOR

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Material Identity
Product Name: ADVANTAGE PLUS 1400 DEPOSIT INHIBITOR
Product Code:

Company
Ashland
Ashland Distribution Co. &
Ashland Specialty Chemical Co.
P. O. Box 2219
Columbus, OH 43216
614-790-3333

Emergency Telephone Number:
1-800-ASHLAND (1-800-274-5263)
24 hours everyday

Regulatory Information Number:
1-800-325-3751

2. COMPOSITION/INFORMATION ON INGREDIENTS

Ingredient(s)	CAS Number	% (by weight)
ETHYLENEDIAMINE TETRAACETIC ACID NA SALT	64-02-8	1.0- 10.0
ACRYLIC POLYMER		1.0- 10.0
SODIUM LIGNOSULFONATE	8061-51-6	1.0- 10.0
ORGANIC SALT		1.0- 10.0

3. HAZARDS IDENTIFICATION

Potential Health Effects

Eye
Can cause permanent eye injury. Symptoms include stinging, tearing, redness, and swelling of eyes. Can injure the cornea and cause blindness.

Skin
Can cause permanent skin damage. Symptoms may include redness, burning, and swelling of skin, burns, and other skin damage. Additional symptoms of skin contact may include: allergic skin reaction (delayed skin rash which may be followed by blistering, scaling and other skin effects) Passage of this material into the body through the skin is possible, but it is unlikely that this would result in harmful effects during safe handling and use.

Swallowing
Swallowing this material may be harmful or fatal. Symptoms may include severe stomach and intestinal irritation (nausea, vomiting, diarrhea), abdominal pain, and vomiting of blood. Swallowing this material may cause burns and destroy tissue in the mouth, throat, and digestive tract. Low blood pressure and shock may occur as a result of severe tissue injury.

Inhalation
It is possible to breathe this material under certain conditions of handling and use (for example, during heating, spraying, or stirring). Breathing this material may be harmful or fatal.

Continued on next page

Symptoms of Exposure
Signs and symptoms of exposure to this material through breathing, swallowing, and/or passage of the material through the skin may include: stomach or intestinal upset (nausea, vomiting, diarrhea), irritation (nose, throat, airways).

Target Organ Effects
No data

Developmental Information
This material (or a component) has been shown to cause birth defects in laboratory animal studies. Harm to the fetus occurs only at exposure levels that harm the pregnant animal. The relevance of these findings to humans is uncertain.

Cancer Information
There is no information available. The chance of this material causing cancer is unknown. This material is not listed as a carcinogen by the International Agency for Research on Cancer, the National Toxicology Program, or the Occupational Safety and Health Administration.

Other Health Effects
No data

Primary Route(s) of Entry
Inhalation, Skin absorption, Skin contact, Eye contact, Ingestion.

4. FIRST AID MEASURES

Eyes
If material gets into the eyes, immediately flush eyes gently with water for at least 15 minutes while holding eyelids apart. If symptoms develop as a result of vapor exposure, immediately move individual away from exposure and into fresh air before flushing as recommended above. Seek immediate medical attention.

Skin
Immediately flush skin with water for at least 15 minutes while removing contaminated clothing and shoes. Seek immediate medical attention. Wash clothing before reuse and discard contaminated shoes.

Swallowing
Seek immediate medical attention. Do not induce vomiting. Vomiting will cause further damage to the mouth and throat. If individual is conscious and alert, immediately rinse mouth with water and give milk or water to drink. If possible, do not leave individual unattended.

Inhalation
If symptoms develop, immediately move individual away from exposure and into fresh air. Seek immediate medical attention; keep person warm and quiet. If person is not breathing, begin artificial respiration. If breathing is difficult, administer oxygen.

Continued on next page

Note to Physicians
Preexisting disorders of the following organs (or organ systems) may be aggravated by exposure to this material: skin, lung (for example, asthma-like conditions), eye.

5. FIRE FIGHTING MEASURES

Flash Point
Not applicable

Explosive Limit
Not applicable

Autoignition Temperature
No data

Hazardous Products of Combustion
May form: carbon dioxide and carbon monoxide, sodium oxide.

Fire and Explosion Hazards
No special fire hazards are known to be associated with this product.

Extinguishing Media
regular foam, water fog, carbon dioxide, dry chemical.

Fire Fighting Instructions
Wear a self-contained breathing apparatus with a full facepiece operated in the positive pressure demand mode with appropriate turn-out gear and chemical resistant personal protective equipment. Refer to the personal protective equipment section of this MSDS.

NFPA Rating
Health - 3, Flammability - 0, Reactivity - 1

6. ACCIDENTAL RELEASE MEASURES

Small Spill
Absorb liquid on vermiculite, floor absorbent or other absorbent material. Scoop or scrape up. Put in container for recovery or disposal.

Large Spill
Persons not wearing protective equipment should be excluded from area of spill until clean-up has been completed. Stop spill at source, dike area of spill to prevent spreading, pump liquid to salvage tank. Remaining liquid may be taken up on sand, clay, earth, floor absorbent, or other absorbent material and shoveled into containers.

7. HANDLING AND STORAGE

Handling
Containers of this material may be hazardous when emptied. Since emptied containers retain product residues (vapor, liquid, and/or solid), all hazard precautions given in the data sheet must be observed.

Continued on next page

Storage
Store in closed containers in a dry, well-ventilated area. Keep from freezing.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Eye Protection
Chemical splash goggles and face shield (8" min.) in compliance with OSHA regulations are advised; however, OSHA regulations also permit other type safety glasses. (Consult your industrial hygienist.)

Skin Protection
Wear resistant gloves such as: neoprene, To prevent repeated or prolonged skin contact, wear impervious clothing and boots..

Respiratory Protections
Exposures in the workplace should be monitored to determine if worker exposure to vapor or mist air concentrations exceeds the facility specified exposure "action level" or the use of the product produces adverse health effects or symptoms of exposure. Only a NIOSH/MSHA approved respirator and cartridge (TC-23C) is to be used. Monitoring results must be used to assess the proper level of respiratory protection necessary (such as: full face piece respirator with chemical cartridges or self-contained breathing apparatus (scuba), etc.). Proper engineering and/or administrative controls should be used to reduce worker exposure. The facility's respiratory protection program must meet the requirements established in 29 CFR 1910.134, which includes a program for medical evaluation.

Engineering Controls
Provide sufficient mechanical (general and/or local exhaust) ventilation to maintain exposure below level of overexposure (from known, suspected or apparent adverse effects).

Exposure Guidelines
Component

ETHYLENEDIAMINE TETRAACETIC ACID NA SALT (64-02-8)
No exposure limits established

ACRYLIC POLYMER
No exposure limits established

SODIUM LIGNOSULFONATE (8061-51-6)
No exposure limits established

ORGANIC SALT
No exposure limits established

9. PHYSICAL AND CHEMICAL PROPERTIES

Boiling Point
(for component) 212.0 F (100.0 C) @ 760 mmHg

Continued on next page

Vapor Pressure
(for component) 17.500 mmHg @ 68.00 F

Specific Vapor Density
No data

Specific Gravity
1.120 @ 68.00 F

Liquid Density
9.330 lbs/gal @ 68.00 F
1.120 kg/l @ 20.00 C

Percent Volatiles
70.0 - 85.0 %

Volatile Organic Compounds (VOC)
.000 %
.000 g/l
.000 lbs/gal

Evaporation Rate
< 1.00

Appearance
DARK BROWN LIQUID

State
LIQUID

Physical Form
HOMOGENEOUS SOLUTION

Color
DARK BROWN

Odor
NOT DETERMINED

pH
13.0

Freezing Point
28.0 F (-2.2 C)

Octanol/Water Partition Coefficient
> 1.000

10. STABILITY AND REACTIVITY

Hazardous Polymerization
Product will not undergo hazardous polymerization.

Continued on next page

Hazardous Decomposition
May form: carbon dioxide and carbon monoxide, sodium oxide.

Chemical Stability
Stable.

Incompatibility
Avoid contact with: copper, reactive metals such as aluminum and magnesium, strong mineral acids, strong oxidizing agents.

11. TOXICOLOGICAL INFORMATION

LD 50 and LC 50 Data

ETHYLENEDIAMINETETRAACETATE, SODIUM SALT (CAS# 64-02-8)
Oral LD50 (male rat): 3030 mg/kg
Dermal LD50 (rabbit): >5000 mg/kg
Inhalation LC50: Not available
SODIUM LIGNOSULFONATE (CAS# 8061-51-6)
Oral LD50 (mouse): 6030 mg/kg
Dermal LD50: Not available
Inhalation LC50: Not available

12. ECOLOGICAL INFORMATION

Ecotoxicological Information
96 hour LC50 rainbow trout (static conditions): 3536.0 mg/l*
96 hour LC50 fathead minnow (static conditions): 2031.0 mg/l*
48 hour LC50 Daphnia magna (static conditions): 3536.0 mg/l*

* Based on a similar product formulation.

Chemical Fate Information
BOD5: 58 ppm*
COD: 490,000 ppm*

* Based on a similar product formulation.

13. DISPOSAL CONSIDERATION

Waste Management Information
Dispose of in accordance with all applicable local, state and federal regulations. For assistance with your waste management needs - including disposal, recycling and waste stream reduction, contact Ashland Distribution Company, IC&S Environmental Services Group at 800-637-7922.

14. TRANSPORT INFORMATION

DOT Information - 49 CFR 172.101
DOT Description:
NON-REGULATED BY D.O.T.

Continued on next page

Container/Mode:
55 GAL DRUM/TRUCK PACKAGE

NOS Component:
None

RQ (Reportable Quantity) - 49 CFR 172.101
Not applicable

Other Transportation Information
The DOT transport information may vary with the container and mode of shipment.

15. REGULATORY INFORMATION

US Federal Regulations

TSCA (Toxic Substances Control Act) Status
TSCA (UNITED STATES) The intentional ingredients of this product are listed.

CERCLA RQ - 40 CFR 302.4(a)
None listed

CERCLA RQ - 40 CFR 302.4(b)
This material has a RQ of 100 lbs as a D002 Corrosive unlisted hazardous substance.

SARA 302 Components - 40 CFR 355 Appendix A
None

Section 311/312 Hazard Class - 40 CFR 370.2
Immediate(X) Delayed( ) Fire( ) Reactive( ) Sudden Release of Pressure( )

SARA 313 Components - 40 CFR 372.65
None

OSHA Process Safety Management 29 CFR 1910
None listed

EPA Accidental Release Prevention 40 CFR 68
None listed

International Regulations

Inventory Status
DSL (CANADA) The intentional ingredients of this product are listed.

State and Local Regulations

California Proposition 65
None

Continued on next page

16. OTHER INFORMATION

The information accumulated herein is believed to be accurate but is not warranted to be whether originating with the company or not. Recipients are advised to confirm in advance of need that the information is current, applicable, and suitable to their circumstances.

MATERIAL SAFETY DATA SHEET

AMERSITE 2 CORROSION INHIBITOR

---

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Material Identity
Product Name: AMERSITE 2 CORROSION INHIBITOR
General or Generic ID: CORROSION INHIBITOR

Company
Ashland
Ashland Distribution Co. &
Ashland Specialty Chemical Co.
P. O. Box 2219
Columbus, OH 43216
614-790-3333

Emergency Telephone Number:
1-800-ASHLAND (1-800-274-5263)
24 hours everyday

Regulatory Information Number:
1-800-325-3751

---

2. COMPOSITION/INFORMATION ON INGREDIENTS

Ingredient(s)	CAS Number	% (by weight)
DIUM METABISULFITE	7681-57-4	30.0- 40.0

---

3. HAZARDS IDENTIFICATION

Potential Health Effects

Eye
Can cause permanent eye injury. Symptoms include stinging, tearing, redness, and swelling of eyes. Can injure the cornea and cause blindness.

Skin
May cause mild skin irritation. Symptoms may include redness and burning of skin.

Swallowing
Swallowing small amounts of this material during normal handling is not likely to cause harmful effects. Swallowing large amounts may be harmful.

Continued on next page

Inhalation
Breathing of vapor or mist is possible.

Symptoms of Exposure
Signs and symptoms of exposure to this material through breathing, swallowing, and/or passage of the material through the skin may include: stomach or intestinal upset (nausea, vomiting, diarrhea) irritation (nose, throat, airways).

Target Organ Effects
No data

Developmental Information
No data

Cancer Information
No data

Other Health Effects
No data

Primary Route(s) of Entry
Inhalation, Skin contact.

---

4. FIRST AID MEASURES

Eyes
If symptoms develop, immediately move individual away from exposure and into fresh air. Flush eyes gently with water for at least 15 minutes while holding eyelids apart; seek immediate medical attention.

Skin
Remove contaminated clothing. Wash exposed area with soap and water. If symptoms persist, seek medical attention. Launder clothing before reuse.

Continued on next page

Swallowing
Seek medical attention. If individual is drowsy or unconscious, do not give anything by mouth; place individual on the left side with the head down. Contact a physician, medical facility, or poison control center for advice about whether to induce vomiting. If possible, do not leave individual unattended.

Inhalation
If symptoms develop, immediately move individual away from exposure and into fresh air. Seek immediate medical attention; keep person warm and quiet. If person is not breathing, begin artificial respiration. If breathing is difficult, administer oxygen.

Note to Physicians
Preexisting disorders of the following organs (or organ systems) may be aggravated by exposure to this material: lung (for example, asthma-like conditions).

FIRE FIGHTING MEASURES

Flash Point
Not applicable

Explosive Limit
Not applicable

Autoignition Temperature
No data

Hazardous Products of Combustion
May form: sulfur dioxide.

Fire and Explosion Hazards
No special fire hazards are known to be associated with this product.

Continued on next page

Extinguishing Media
water fog, carbon dioxide.

Fire Fighting Instructions
Wear a self-contained breathing apparatus with a full facepiece operated in the positive pressure demand mode with appropriate turn-out gear and chemical resistant personal protective equipment. Refer to the personal protective equipment section of this MSDS.

NFPA Rating
Health - 2, Flammability - 0, Reactivity - 0

---

6. ACCIDENTAL RELEASE MEASURES

Small Spill
Absorb liquid on vermiculite, floor absorbent or other absorbant material.

Large Spill
Prevent run-off to sewers, streams or other bodies of water. If run-off occurs, notify proper authorities as required, that a spill has occurred. Persons not wearing protective equipment should be excluded from area of spill until clean-up is completed. Stop spill at source. Dike to prevent spreading. Pump to salvage tank.

---

7. HANDLING AND STORAGE

Handling
Containers of this material may be hazardous when emptied. Since emptied containers retain product residues (vapor, liquid, and/or solid), all hazard precautions given in the data sheet must be observed.

Continued on next page

---

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Eye Protection
Chemical splash goggles in compliance with OSHA regulations are advised; however, OSHA regulations also permit other type safety glasses. Consult your safety representative.

Skin Protection
Wear resistant gloves such as: neoprene, polyvinyl chloride, To prevent repeated or prolonged skin contact, wear impervious clothing and boots., Wear normal work clothing covering arms and legs..

Respiratory Protections
If workplace exposure limit(s) of product or any component is exceeded (see exposure guidelines), a NIOSH/MSHA approved air supplied respirator is advised in absence of proper environmental control. OSHA regulations also permit other NIOSH/MSHA respirators (negative pressure type) under specified conditions (see your industrial hygienist). Engineering or administrative controls should be implemented to reduce exposure.

Engineering Controls
Provide sufficient mechanical (general and/or local exhaust) ventilation to maintain exposure below TLV(s).

Exposure Guidelines
Component

SODIUM METABISULFITE (7681-57-4)
OSHA VPEL 5.000 mg/m3 - TWA
ACGIH TLV 5.000 mg/m3 - TWA

---

9. PHYSICAL AND CHEMICAL PROPERTIES

Boiling Point
(for component) 212.0 F (100.0 C) @ 760 mmHg

Continued on next page

Vapor Pressure
(for component) 17.500 mmHg

Specific Vapor Density
> 1.000 @ AIR=1

Specific Gravity
1.300 @ 77.00 F

Liquid Density
10.800 lbs/gal @ 77.00 F
1.300 kg/l @ 25.00 C

Percent Volatiles
55.0 - 70.0 %

Evaporation Rate
SLOWER THAN ETHYL ETHER

Appearance
CLEAR

State
LIQUID

Physical Form
HOMOGENEOUS SOLUTION

Color
PINK

Odor
No data

pH
4.1

Freezing Point
15.0 F (-9.4 C)

Continued on next page

Solubility in Water
SOLUBLE

10. STABILITY AND REACTIVITY

Hazardous Polymerization
Product will not undergo hazardous polymerization.

Hazardous Decomposition
May form: sulfur dioxide.

Chemical Stability
Stable.

Incompatibility
Avoid contact with: strong mineral acids, strong oxidizing agents

11. TOXICOLOGICAL INFORMATION

No data

12. ECOLOGICAL INFORMATION

No data

13. DISPOSAL CONSIDERATION

Waste Management Information
Dispose of in accordance with all applicable local, state and federal regulations. For assistance with your waste management needs - including disposal, recycling and waste stream reduction, contact Ashland Distribution Company, IC&S Environmental Services Group at 800-637-7922.

Continued on next page

---

14. TRANSPORT INFORMATION

DOT Information - 49 CFR 172.101
DOT Description:
BISULFITES, AQUEOUS SOLUTIONS, N.O.S.,8,UN2693,III

Container/Mode:
55 GAL DRUM/TRUCK PACKAGE

HOS Component:
SODIUM BISULFITE

RQ (Reportable Quantity) - 49 CFR 172.101
Not applicable

---

15. REGULATORY INFORMATION

US Federal Regulations
TSCA (Toxic Substances Control Act) Status
TSCA (UNITED STATES) The intentional ingredients of this product are listed.

CERCLA RQ - 40 CFR 302.4(a)
None listed

CERCLA RQ - 40 CFR 302.4(b)
Materials without a "listed" RQ may be reportable as an "unlisted hazardous substance". See 40 CFR 302.5 (b).

SARA 302 Components - 40 CFR 355 Appendix A
None

Section 311/312 Hazard Class - 40 CFR 370.2
Immediate(X) Delayed( ) Fire( ) Reactive( ) Sudden Release of Pressure( )

SARA 313 Components - 40 CFR 372.65
None

Continued on next page

OSHA Process Safety Management 29 CFR 1910
None listed

EPA Accidental Release Prevention 40 CFR 68
None listed

International Regulations
Inventory Status
DSL (CANADA) The intentional ingredients of this product are listed.

State and Local Regulations
California Proposition 65
The following statement is made in order to comply with the California Safe Drinking Water and Toxic Enforcement Act of 1986: This product contains the following substance(s) known to the state of California to cause cancer.
ARSENIC
LEAD
NICKEL
COBALT METAL POWDER

The following statement is made in order to comply with the California Safe Drinking Water and Toxic Enforcement Act of 1986: This product contains the following substance(s) known to the state of California to cause reproductive harm.
ARSENIC
LEAD

New Jersey RTK Label Information
SODIUM METABISULFITE 7681-57-4

Pennsylvania RTK Label Information
DISULFUROUS ACID, DISODIUM SALT 7681-57-4

Continued on next page

16. OTHER INFORMATION

The information accumulated herein is believed to be accurate but is not warranted to be whether originating with the company or not. Recipients are advised to confirm in advance of need that the information is current, applicable, and suitable to their circumstances.

MATERIAL SAFETY DATA SHEET

Ashland

Date Prepared: 06/28/99
Date Printed: 01/29/00
MSDS No: 306.C249274-007.001

AMERCOR 1848 CORROSION INHIBITOR

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Material Identity
Product Name: AMERCOR 1848 CORROSION INHIBITOR
Product Code:
General or Generic ID: CORROSION INHIBITOR

Company
Ashland
Ashland Distribution Co. &
Ashland Specialty Chemical Co.
P. O. Box 2219
Columbus, OH 43216
614-790-3333

Emergency Telephone Number:
1-800-ASHLAND (1-800-274-5263)
24 hours everyday

Regulatory Information Number:
1-800-325-3751

2. COMPOSITION/INFORMATION ON INGREDIENTS

Ingredient(s)	CAS Number	% (by weight)
CYCLOHEXYLAMINE	108-91-8	10.0- 25.0
DIETHYLETHANOLAMINE	100-37-8	10.0- 25.0
MORPHOLINE	110-91-8	10.0- 25.0

3. HAZARDS IDENTIFICATION

Potential Health Effects

Eye
Can cause permanent eye injury. Symptoms include blinking, tearing, redness, and swelling of eyes. Can injure the cornea and cause blindness. Additional symptoms of eye exposure may include: halo vision (blurred vision around bright objects)

Skin
Can cause permanent skin damage. Symptoms may include redness, burning, and swelling of skin, burns, and other skin damage. Additional symptoms of skin contact may include: allergic skin reaction (delayed skin rash which may be followed by blistering, scaling and other skin effects), Passage of this material into the body through the skin is possible, and skin contact may be harmful.

Swallowing
Swallowing this material may be harmful or fatal. Symptoms may include severe stomach and intestinal irritation (nausea, vomiting, diarrhea, abdominal pain, and vomiting of blood. Swallowing this material may cause burns and destroy tissue in the mouth, throat, and digestive tract. Low blood pressure and shock may occur as a result of severe tissue injury.

Inhalation
Breathing of vapor or mist is possible. Breathing this material may be harmful. Symptoms usually occur at air concentrations higher than the recommended exposure limits (See Section 8).

Continued on next page

Symptoms of Exposure
Signs and symptoms of exposure to this material through breathing, swallowing, and/or passage of the material through the skin may include: stomach or intestinal upset (nausea, vomiting, diarrhea), irritation (nose, throat, airways), cough, headache, central nervous system depression (dizziness, drowsiness, weakness, fatigue, nausea, headache, unconsciousness), nervousness, muscle weakness, effects on blood pressure, chest pain, effects on heart rate, loss of coordination, difficult breathing, methemoglobinemia (blood abnormality which causes a blue coloring to the skin), lung edema (fluid buildup in the lung tissue).

Target Organ Effects
Overexposure to this material (or its components) has been suggested as a cause of the following effects in laboratory animals: mild, reversible bladder effects, liver abnormalities, effects on male fertility, nasal damage, testis damage, eye damage, kidney damage, liver damage, lung damage.

Developmental Information
This material (or a component) has been shown to cause harm to the fetus in laboratory animal studies. Harm to the fetus occurs only at exposure levels that harm the pregnant animal. The relevance of these findings to humans is uncertain.

Cancer Information
No data

Other Health Effects
This material (or a component) has been both positive and negative in tests for mutagenicity. The relevance of this finding to human health is uncertain.

Primary Route(s) of Entry
Inhalation, Skin absorption, Skin contact, Ingestion.

4. FIRST AID MEASURES

Eyes
If material gets into the eyes, immediately flush eyes gently with water for at least 15 minutes while holding eyelids apart. If symptoms develop as a result of vapor exposure, immediately move individual away from exposure and into fresh air before flushing as recommended above. Seek immediate medical attention.

Skin
Immediately flush skin with water for at least 15 minutes while removing contaminated clothing and shoes. Seek immediate medical attention. Wash clothing before reuse and discard contaminated shoes.

Swallowing
Seek immediate medical attention. Do not induce vomiting. Vomiting will cause further damage to the mouth and throat. If individual is conscious and alert, immediately rinse mouth with water and give milk or water to drink. If possible, do not leave individual unattended.

Continued on next page

Sampling and Analysis Plan Table for Chemical and Radiological Analysis

DRAFT

Plan Table Number: [illegible]

SAP Number: [illegible]

Date: [illegible] Plan Table Revision: [illegible] Project: [illegible] Project Manager: [illegible]

Sampler: [illegible] SMO Contact: [illegible]

Sample Description						Sample Location				Enter Analysis Types (AT) and Quantity Requested																			
Sampling Activity	Sample Type	Sample Matrix	Coll Type	Sampling Method	Planned Date	Area	Type of Location	Location	Depth (ft)	AT1	AT2	AT3	AT4	AT5	AT6	AT7	AT8	AT9	AT10	AT11	AT12	AT13	AT14	AT15	AT16	AT17	AT18	AT19	AT20
										[illegible]	[illegible]	[illegible]																	
[illegible]	REG/QC	SLUDGE	COMP			INTEC	[illegible]	[illegible]	NA	2	1	2																	

The sampling activity displayed on this table represents the first six characters of the sample identification number. The complete sample identification number (10 characters) will appear on field guidance forms and sample labels.

AT1: Analysis Suite #1

AT2: Analysis Suite #2

AT3: Radiochemistry - Suite 1

AT4:

AT5:

AT6:

AT7:

AT8:

AT9:

AT10:

AT11:

AT12:

AT13:

AT14:

AT15:

AT16:

AT17:

AT18:

AT19:

AT20:

Comments:

Analysis Suites:

Analysis Suite #1: [illegible]

Analysis Suite #2: [illegible]

Radiochemistry - Suite 1: [illegible]

[illegible]

Contingencies:

Large Spill
Eliminate all ignition sources (flares, flames including pilot lights, electrical sparks). Persons not wearing protective equipment should be excluded from area of spill until clean-up has been completed. Stop spill at source. Prevent from entering drains, sewers, streams or other bodies of water. Prevent from spreading. If runoff occurs, notify authorities as required. Pump or vacuum transfer spilled product to clean containers for recovery. Absorb unrecoverable product. Transfer contaminated absorbent, soil and other materials to containers for disposal. Prevent run-off to sewers, streams or other bodies of water. If run-off occurs, notify proper authorities as required, that a spill has occurred.

7. HANDLING AND STORAGE

Handling
Containers of this material may be hazardous when emptied. Since emptied containers retain product residues (vapor, liquid, and/or solid), all hazard precautions given in the data sheet must be observed. All five-gallon pails and larger metal containers, including tank cars and tank trucks, should be grounded and/or bonded when material is transferred. Do not use sodium nitrite or other nitrosating agents in formulations containing this product. Suspected cancer-causing nitrosamines could be formed.

Storage
Keep from freezing.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Eye Protection
Chemical splash goggles and face shield (8" min.) in compliance with OSHA regulations are advised; however, OSHA regulations also permit other type safety glasses. (Consult your industrial hygienist.)

Skin Protection
Wear resistant gloves such as: natural rubber, nitrile rubber. To prevent skin contact, wear impervious clothing and boots., Other protective equipment: eyewash station, emergency shower..

Respiratory Protections
Exposures in the workplace should be monitored if worker exposure to vapor or mists exceeds the PEL or TLV. Only a NIOSH/MSHA approved respirator and cartridge (7C-23C) is to be used. Monitoring results must be used to assess the proper level of respiratory protection necessary (such as: full face piece respirator with chemical cartridges or self-contained breathing apparatus (scuba), etc.). Proper engineering and/or administrative controls should be used to reduce worker exposure. The facility's respiratory program must meet the requirements established in 29 CFR 1910.134, which includes a program for medical evaluation.

Engineering Controls
Provide sufficient mechanical (general and/or local exhaust) ventilation to maintain exposure below level of overexposure (from known, suspected or apparent adverse effects).

Continued on next page

Exposure Guidelines
Component

CYCLOHEXYLAMINE (108-91-8)
OSHA VPEL 10.000 ppm - TWA
ACGIH TLV 10.000 ppm - TWA

DIETHYLETHANOLAMINE (100-37-8)
OSHA VPEL 10.000 ppm - TWA (Skin)
ACGIH TLV 2.000 ppm - TWA (Skin)

MORPHOLINE (110-91-8)
OSHA VPEL 20.000 ppm - TWA (Skin)
OSHA VPEL 30.000 ppm - STEL (Skin)
ACGIH TLV 20.000 ppm - TWA (Skin)
ACGIH TLV 30.000 ppm - STEL (Skin)

9. PHYSICAL AND CHEMICAL PROPERTIES

Boiling Point
(for component) 212.0 F (100.0 C) @ 760 mmHg

Vapor Pressure
(for component) 17.500 mmHg @ 68.00 F

Specific Vapor Density
1.000 @ AIR=1

Specific Gravity
.970 @ 77.00 F

Liquid Density
8.089 lbs/gal @ 77.00 F
.970 kg/l @ 25.00 C

Percent Volatiles
100.0 %

Evaporation Rate
SLOWER THAN ETHYL ETHER

Appearance
CLEAR TO LIGHT AMBER LIQUID

State
LIQUID

Physical Form
No data

Color
CLEAR TO LIGHT AMBER

Continued on next page

Odor
No data

pH
12.5

Freezing Point
-29.0 F (-33.8 C)

10. STABILITY AND REACTIVITY

Hazardous Polymerization
Product will not undergo hazardous polymerization.

Hazardous Decomposition
May form: carbon dioxide and carbon monoxide, nitrogen compounds, various hydrocarbons.

Chemical Stability
Stable.

Incompatibility
Avoid contact with: excessive heat, strong acids, strong oxidizing agents, temperature extremes.

11. TOXICOLOGICAL INFORMATION

No data

12. ECOLOGICAL INFORMATION

Ecotoxicological Information
96 hour LC50 rainbow trout (static conditions): 7071.1 mg/l
96 hour LC50 fathead minnow (static conditions): 947.3 mg/l
48 hour LC50 Daphnia magna (static conditions): 883.9 mg/l

Chemical Fate Information
BOD5: 1,170,000 mg/l
COD: 1,185,000 mg/l

13. DISPOSAL CONSIDERATION

Waste Management Information
Dispose of in accordance with all applicable local, state and federal regulations. For assistance with your waste management needs - including disposal, recycling and waste stream reduction, contact Ashland Distribution Company, ICES Environmental Services Group at 800-637-7922.

Continued on next page

14. TRANSPORT INFORMATION

DOT Information - 49 CFR 172.101

DOT Description:
AMINES, FLAMMABLE, CORROSIVE, N.O.S.,3,UN2924,III

Container/Mode:
55 GAL DRUM/TRUCK PACKAGE

NOS Component:
CYCLOHEXYLAMINE
MORPHOLINE

RQ (Reportable Quantity) - 49 CFR 172.101
Not applicable

15. REGULATORY INFORMATION

US Federal Regulations

TSCA (Toxic Substances Control Act) Status
TSCA (UNITED STATES) The intentional ingredients of this product are listed.

CERCLA RQ - 40 CFR 302.4(a)
None listed

CERCLA RQ - 40 CFR 302.4(b)
Materials without a "listed" RQ may be reportable as an "unlisted hazardous substance". See 40 CFR 302.5 (b).

SARA 302 Components - 40 CFR 355 Appendix A

Section 302 Component(s)	TPQ (lbs)	RQ (lbs)
CYCLOHEXYLAMINE	10000	10000

Section 311/312 Hazard Class - 40 CFR 370.2
Immediate(X) Delayed(X) Fire(X) Reactive( ) Sudden Release of Pressure( )

SARA 313 Components - 40 CFR 372.65
None

OSHA Process Safety Management 29 CFR 1910
None Listed

EPA Accidental Release Prevention 40 CFR 68

NHP Component (s)	Condition	TQ (lbs)
CYCLOHEXYLAMINE *CYCLOHEXANAMINE		15000

International Regulations

Inventory Status
Not determined

Continued on next page

State and Local Regulations

California Proposition 65

None

New Jersey RTK Label Information

CYCLOHEXYLAMINE	108-91-8
DIETHYLAMINOETHANOL	100-37-8
MORPHOLINE	110-91-8

Pennsylvania RTK Label Information

CYCLOHEXANAMINE	108-91-8
ETHANOL, 2-(DIETHYLAMINO)-	100-37-8
MORPHOLINE	110-91-8

16. OTHER INFORMATION

The information accumulated herein is believed to be accurate but is not warranted to be whether originating with the company or not. Recipients are advised to confirm in advance of need that the information is current, applicable, and suitable to their circumstances.